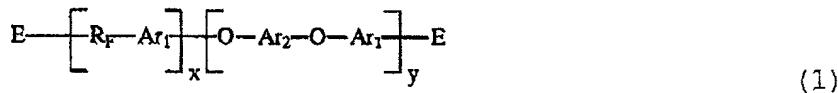
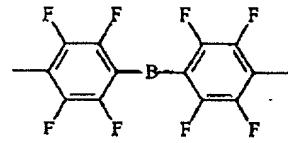


**ABSTRACT**

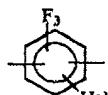
The present invention relates to fluorinated polyethers having a fluorinated aliphatic group at a main chain as represented by the formula (1), as well as a waveguide fabricated using the same:



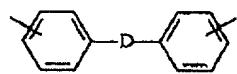
where  $R_F$  represents  $OCH_2(CF_2)_nCH_2O$ , or  $OCH_2CF_2O(CF_2CF_2O)_nCF_2CH_2O$ , where  $n$  is a natural number ranging from 1 to 12;



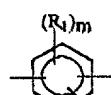
$Ar_1$  represents , where B is not present or a C=O group, or



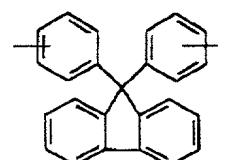
$Ar_1$  represents , where Hal is one selected from F, Cl, Br and I;



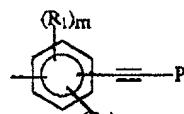
$Ar_2$  represents , where D is one selected from - $C(CF_3)_2$ , - $C(CH_3)_2$ , -CO-, -SO<sub>2</sub>-, -O- and -S-, or



$Ar_2$  represents , where  $R_1$  and  $R_2$  are the same or different and each independently represents a halogen atom selected from F, Cl, Br and I, and m is a natural number of 1-3, or



Ar<sub>2</sub> represents ;



E represents H, or  $(R_1)_m$ , where P is H or a substituted or unsubstituted phenyl group;

x is a number ranging from 0.1 to 1.0;

5 y is 1.0-x.